

**BEST AVAILABLE COPY**

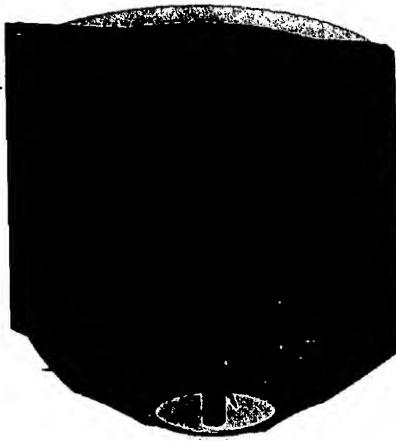
Provisional Filing Date: 2/24/03  
Preparation Date: August 14, 2003  
Submittal Date: September 25, 2003

---

**Inventor** Damon Andrew Schmidt  
USPTO Customer No.: 000038283  
Provisional Application No.: 60/449,337

---

**Title of Invention** *Foliage Wraps – Foliage Thermal Bags*



**Abstract**

This invention relates to a protective device for foliage used to shelter the foliage from frost and/or freezing conditions. More particularly, it relates to foliage protectors, which can, but are not limited to the use of low wattage heating units as an integral part of the protective device. The invention encapsulates the foliage in a flexible enclosure and is available in various sizes and thermal warming capacities. The foliage protector expressly utilizes waste heat from conventional rope light and/or kapton heater tape for providing the heat source.

---

**R ferences Cit d [References By]**

**U.S. Patent Documents**

367,134	Jul., 1887	Culver.	
738,588	Sep., 1903	Woodworth.	
935,057	Sep., 1909	Roberts.	
1,082,439	Dec., 1913	Patterson.	
1,126,426	Jan., 1915	Eddy.	
1,155,313	Sep., 1915	Hogan.	
1,600,749	Sep., 1926	Barnes.	
1,820,040	August 25, 1931		
1,820,040	Aug., 1931	Zuckerman.	
1,897,382	Feb., 1933	Blair.	
1,987,255	Jan., 1935	Husted.	
2,006,562	Jul., 1935	Scheu.	
2,835,078	May., 1958	Whitmore.	
2,953,870	Sep., 1960	Nelson.	
3,466,799	Sep., 1969	McComb Stilson.	
3,748,783	Jul., 1973	Sokolies.	
4,646,467	3-Mar-87	Morris roe	47/20.1
4,829,707	May 16, 1989	Koffler, et al.	47/29.2
4,901,472	February 20, 1990	Donohue , et al.	47/2
4,901,472	Feb., 1990	Donohue et al.	47/22.
5,575,109	November 19, 1996	Kuntz	47/23.3
6,088,953	July 18, 2000	Morgan	47/31
6,412,217	July 23, 2002	Ko	47/20.1
6,421,954	July 23, 2002	Ko	47/20.1
6,588,143	July 8, 2003	Merrell	47/20.1

## **Foreign Patent Documents**

8002191	Oct., 1981	CA	47/26.
2476435	Aug., 1981	FR	47/26.
631865	Sep., 1982	CH	47/26.
617074	Feb., 1949	GB	47/26.
2456465	Jan., 1981	FR	47/22.
1630667	Feb., 1991	SU	47/22.

---

## **Claims**

### **What is claimed:**

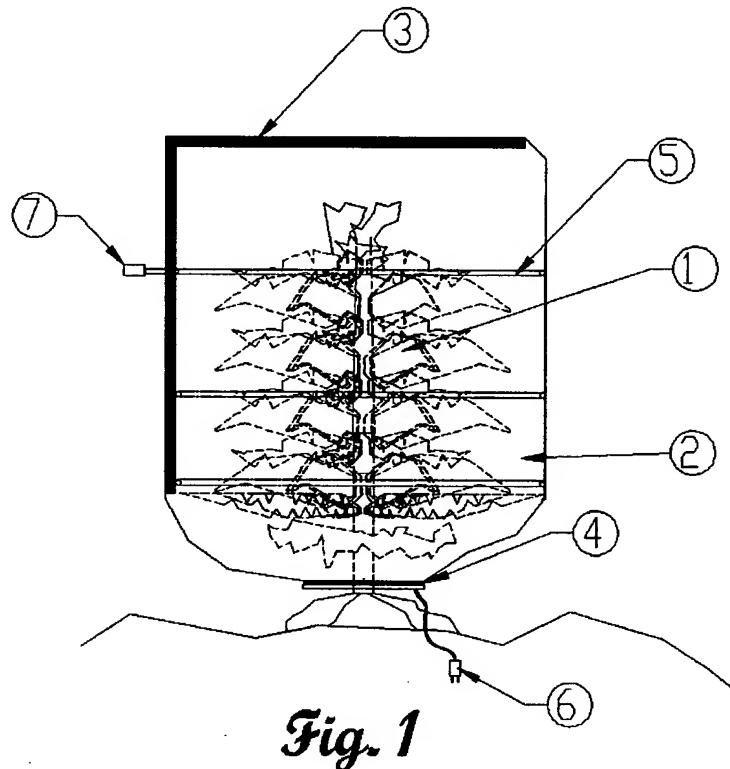
1. A protective device for protecting foliage from damage due to frost or freezing conditions, said protective device utilizes a fabric wrap, which can be formed into an enclosure around the foliage: said enclosure has heating units sewn into the interior of the enclosure.
2. The protective enclosure can be either used as a flat cover or formed, using a restraint device such as Velcro, into a wrap around the foliage.
3. The heating units can either be kapton tape or cylindrical rope light sewn into the interior of the enclosure. Waste heat from the heating unit is used to supply radiant heat into the enclosure. Heating units of various wattages can be installed inside the wrap to allow various thermal capacities for the protective device.
4. The protective device is available in various physical sizes and thermal capacities, and is designed to make the activities of covering foliage easier and more effective. The physical sizes of the protective device are specific to the size

of the foliage the user is covering and the anticipated ambient temperature expected during the freeze warning condition.

5. The protective device utilizes off-the-shelf heating components pre-approved by UL and assembled according to the physical specifications outlined in the drawings of this application.
6. The heating unit is low voltage and powered by 12V and 120V prime power with fused protection.
7. Each protective device allows the plug in of up to two devices at each plug in point, thus allowing the devices to be cascaded on one common extension cord. Total number of protective devices cascaded on one extension cord is limited to the capacity of the extension cord and the ampacity rating of the fused circuit.

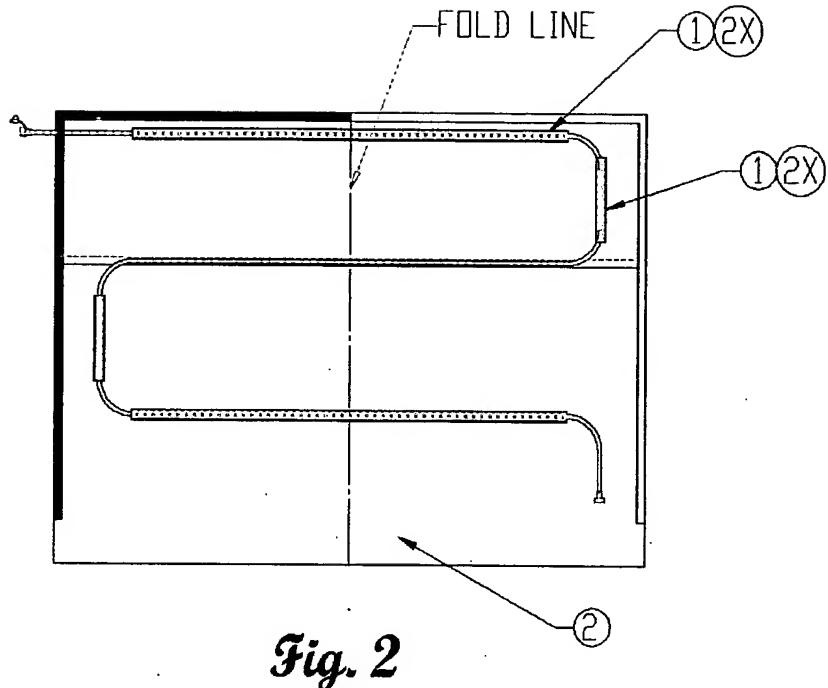
## Description of the Preferred Embodiment

The protective device (*Fig. 1*) is constructed from fabric (*Fig. 1-2*) sewn together in the shape of a flat panel (*Fig. 2*) that can be used to cover foliage. The protective device is 'wrapped' around the foliage and secured using a restraint mechanism, typically Velcro (*Fig 1-3*).



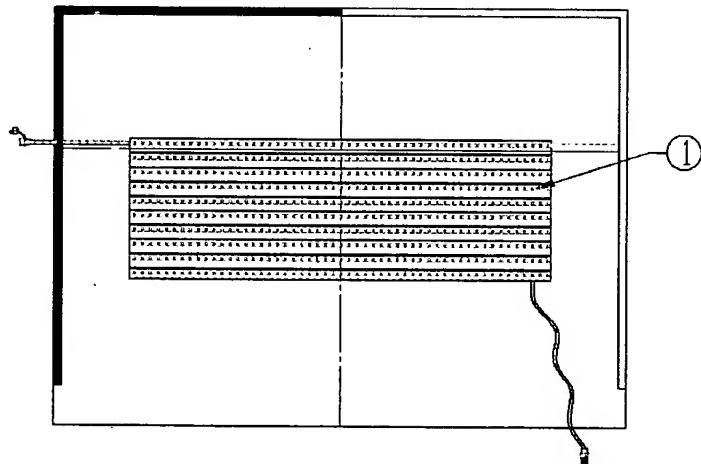
*Fig. 1*

The protective device has thermal heating (*Fig. 1-5*) units sewn in the lining, which provides enough heating capacity to keep the interior temperature of the enclosure above temperatures that adversely affect the health of the foliage. The heating units are secured inside pockets (*Fig. 2-1*) of material sewn into the lining. The pockets space the heating units inside the enclosure for maximum effectiveness. The protective device is available with either rope light or kapton tape (*Fig. 3*) sewn into the lining. The kapton tape (*Fig. 3-1*) version is used where maximum heating capacity is required.



*Fig. 2*

The protective device can be secured around the foliage using a restraint device, typical Velcro (*Fig. 1-3*), thus forming a protective wrap for the foliage. A drawstring (*Fig. 1-4*) is attached at the bottom to allow the enclosure to be closed tightly around the base of the plant. Where necessary, clips are available to help secure the wrap to the foliage and help minimize the volume of air contained inside the wrap.



*Fig. 3*

Multiple devices (*Fig. 4-2*) can be connected together thus allowing them to be cascaded on one common power line (*Fig 4-1*).

